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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,501	12/05/2003	John A. Wozniak	200314345-1	1952

22879 7590 08/25/2005

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EXAMINER

BOATENG, ALEXIS ASIEDUA

ART UNIT PAPER NUMBER

2838

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/729,501	Applicant(s) WOZNIAK, JOHN A.	
	Examiner Alexis Boateng	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/05/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Okutoh (U.S. 6,060,185).

Regarding claim 1, Okutoh discloses a battery pack, comprising: a protection circuit adapted to detect an excessive current consumption condition associated with electronic components forming the battery pack (Figure 1 item 13).

3. Claims 10, 11, 13, 14, 30 and 31 are rejected under 35 U.S.C. 102(a) as being anticipated by Fujiwara (U.S. 6,501,248).

Regarding claim 10, Fujiwara discloses a battery pack, comprising: means for detecting an excessive current consumption condition associated with electronic components forming battery pack (column 3 lines 48 thru 56).

Regarding claims 11, 13 and 14, Fujiwara discloses a battery pack comprising a means for interrupting current flowing to the electronic components forming the battery pack in response to detect the excessive current consumption condition (column 4 lines 28 thru 31).

Regarding claim 30, Fujiwara discloses a battery core pack (figure 1 item 30) connected to a positive terminal of the battery pack and a negative terminal of

the battery pack (figure 1 item 10), the positive and negative terminals adapted to be connected to a host device; and a protection circuit (figure 1 item 1) adapted to distinguish between current consumption associated with electronic components forming the battery pack and current flow associated with the host device to determine whether an excessive current consumption condition exists associated with the electronic components of the battery pack (figure 1 items A and B and column 3 lines 48).

Regarding claim 31, Fujiwara discloses wherein the protection circuit is adapted to interrupt current flowing to the electronic components of the battery pack in response to detecting excessive current consumption condition (column 3 lines 48).

4. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Shirakawa (U.S. 6,534,953).

Regarding claim 15, Shirakawa discloses wherein a battery pack comprising: an integrated circuit adapted to compare potentials across at least two different current sensors to detect an excessive current consumption condition associated with electronic components forming the battery pack (figure 2 items 74 and 75; column lines 58 thru 62).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2, 4, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of Fujiwara (U.S. 6,501,248).

Regarding claims 2, 4, 5 and 9, Okutoh does not disclose wherein the protection circuit is adapted to interrupt current flow to the electronic components forming the battery pack in response to detecting the excessive current consumption condition. Fujiwara discloses in column 3 line 48 thru 56 wherein the protection circuit is designed to stop current flow when an excessive current is detect so that it does not damage the battery pack. At the time of invention, it would have been obvious to a person of ordinary skill in the art to design the protection circuit to interrupt the current flow at the detection of an excessive current so that it protects the battery pack from overcharge, which can be damaging to the system.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of Shirakawa (U.S. 6,534,953).

Regarding claim 3, Okutoh does not disclose wherein the protection circuit is adapted to compare a voltage potential across at least two different current sensors to detect the excessive current consumption condition. Shirakawa discloses in column 5 lines 17 thru 25 wherein the current sensing resistors control the current. Shirakawa further discloses in column lines 58 thru 62 that protection circuit compares the voltage potential across its two terminals. At the time of invention, it would have been obvious to a person ordinary skill in the art to use a method of comparing a voltage potential across two current sensors because it provides a more accurate reading of excessive current.

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of Cheon (U.S. 5,963,019).

Regarding claims 6 and 7, Okutoh does not disclose wherein at least one fuse serially connected to a battery core pack for interrupting current flowing from the battery core pack to the electronic components. Cheon discloses in figure 2 item 80 wherein the fuse is serially connected to the battery pack. Cheon further discloses in column 6 lines 26 thru 31 that when the fuse detects an excessive current level, it opens, thus interrupting the flow of current. At the time of invention it would have been obvious to a person of ordinary skill in the art to implement a fuse that is serially connected to the battery because it can safely monitor the level of current discharge to the electronic components and shut off the flow of excess current which could be potentially hazardous to the rest of the electronic components.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of O'Connor (U.S. 2004/0062387 A1).

Regarding claim 8, Okutoh does not disclose wherein the protection circuit comprises a fuel gauge integrated circuit adapted to determine a combined current flow associated with a host device and the electronic components forming the battery pack. O'Connor discloses in figure 1 item 22 a current monitor, which acts as a fuel gauge, as disclosed in paragraph [0048], by monitoring the current charge and discharge. At the time of invention, it would have been obvious to a person of ordinary skill in the art it would have been obvious to a person of ordinary skill in the art to implement the fuel gauge system that monitors the current flow

so that current is safely regulated to the components of the battery and prevents damaging current overcharge.

10. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (U.S. 6,501,248) in view Shirakawa (U.S. 6,534,953).

Regarding claim 12, Fujiwara does not disclose wherein the battery pack further comprising means for comparing a voltage potential across at least two different current sensors to detect the excessive current condition. Shirakawa discloses in column 5 lines 17 thru 25 wherein the current sensing resistors control the current. Shirakawa further discloses in column lines 58 thru 62 that protection circuit compares the voltage potential across its two terminals. At the time of invention, it would have been obvious to a person ordinary skill in the art to use a method of comparing a voltage potential across two current sensors because it provides a more accurate reading of excessive current.

11. Claims 16, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) in view of Fujiwara (U.S. 6,501,248).

Regarding claim 16, Shirakawa does not disclose wherein the integrated circuit is adapted to interrupt current flowing to the electronic components forming the battery pack in response to detecting the excessive current consumption.

Fujiwara discloses in column 4 lines 28 thru 31 that the overcharge protection circuit detects the potential differences and stops charging if an overcharge is detected. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the integrated circuit to interrupt current flow

of when an excessive current condition is detected so that the circuit is prevented from overcharge damage.

Regarding claims 24 and 25, Shirakawa does not disclose wherein the integrated circuit is adapted to distinguish between current flow associated with a host device and current consumption associated with the electronic components forming the battery pack based on the potentials across the at least two current sensors. Fujiwara discloses in figure 1 items A and B, wherein the protection circuit distinguishes between current flow associated with the host device and current flow associated within the electric components. Fujiwara further discloses in column 9 line 59 thru column 10 line 12 wherein the potentials are detected over two terminals. At the time of invention, it would have been obvious to a person of ordinary skill in the art, to modify the circuit so that it distinguishes between the different currents so that when overcharging occurs, it can properly cutoff the charging or discharging the circuit as needed.

12. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) in view of Demuro (U.S. 6,046,575).

Regarding claim 17 and 18, Shirakawa does not disclose wherein the battery pack comprises a fuse serially connected to a positive terminal of a battery core pack for interrupting current flowing from the battery core pack to the electronic components in response to detecting the excessive current consumption condition. Demuro discloses in figure 1 item 124 a fuse serially connected to the positive terminal of a battery pack. At the time of invention it would have been obvious to a person of ordinary skill in the art to implement a fuse that is serially

connected to the battery because it can safely monitor the level of current discharge to the electronic components shuts off the flow of current which could be potentially hazardous to the rest of the electronic components.

13. Claims 19, 20, 22, 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501,248) in view of Huelss (U.S. 2003/0080747).

Regarding claims 19, 20, 22, 33, and 38, Shirakawa and Fujiwara do not disclose wherein at least one of the current sensors comprises a current sense resistor. Shirakawa and Fujiwara also do not further disclose wherein the current sense resistor is serially connected between a positive terminal of the battery pack and recharge transistor of the battery pack. Huelss discloses in figure 3, item 134 wherein the current sensor comprises sense resistor. At the time of invention, it would have been obvious to a person of ordinary skill in the art, to implement a resistor as a current sensor because a resistor provides a simpler method in determining the differences in potential in a circuit.

14. Claims 21, 23, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501,248) in view of Okada (U.S. 2003/0117143 A1).

Regarding claims 21, 23 and 34, Shirakawa and Fujiwara do not disclose wherein the current sense resistor is serially connected between a negative terminal of the battery pack and a negative terminal of a battery core pack. Okada discloses in figure 1 item 6 wherein the current sensor is a resistor serially connected to the negative terminal of the battery pack and a negative terminal of

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a battery core pack. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a current sense resistor at the negative terminals of the battery core pack so that the current flowing from the negative terminal battery pack can be monitored and stopped if it rises above a predetermined level.

15. Claims 26, 28, 29, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501,248) in view of Cheon (U.S. 5,963,019).

Regarding claim 26, Shirakawa does not disclose wherein a fuse serially connected between a positive terminal of the battery pack and a recharge transistor for interrupting current flowing from the host device to the electronic components. Cheon discloses in figure 5 item 80, a fuse serially connected between the positive terminal of the battery pack and a recharge transistor. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a serially connected fuse between the battery pack terminals and the transistor because the fuse can accurately detect overcharge and cheaper to make.

Regarding claims 28, 29, 35, and 37, Shirakawa and Fujiwara do not disclose wherein the integrated circuit is coupled to a fuse of interrupting current flowing from a host device to the electronic components in response to detecting the excessive current consumption condition. Cheon discloses in figure 5 item 80 and in column 6 lines 26 thru 34 wherein a fuse is coupled to the integrated circuit and the fuse interrupts charging if it detects and excessive current

consumption. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a fuse coupled to the integrated circuit because the fuse can accurately detect overcharge and cheaper to make.

16. Claims 27 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501,248) in view of Saeki (U.S. 6,492,791).

Regarding claim 27 and 36, Shirakawa and Fujiwara do not disclose wherein a fuse serially connected between a positive terminal of the battery core pack and a charge transistor for interrupting current flowing from the host device to the electronic components. Saki discloses in figure 1 item 102 wherein a fuse is serially connected between the positive terminal of a battery core pack and a charge transistor. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a serially connected fuse between the battery pack terminals and the transistor because the fuse can accurately detect overcharge and cheaper to make.

17. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (U.S. 6,501,248) in view of Shirakawa (U.S. 6,534,953).

Regarding claim 32, Fujiwara does not disclose wherein the protection circuit is adapted to compare voltage potentials across at least two different current sense resistors to detect the excessive current consumption condition. Shirakawa discloses in figure 2 items 74 and 75 and in column lines 58 thru 62 wherein the protection circuit comprises two current sensing resistors, which detect the

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excessive current consumption. At the time of invention, it would have been obvious to a person of ordinary skill in the art

Conclusion


18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Astala (U.S. 6,804,100).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB


Adolf Denke Bernane
Primary Examiner
8/22/05